

**Abstract of the Disclosure**

5 A passivation layer of AlN is deposited on a GaN channel HFET using molecular beam epitaxy (MBE). Using MBE, many other surfaces may also be coated with AlN, including silicon devices, nitride devices, GaN based LEDs and lasers as well as other semiconductor systems. The deposition is performed at approximately 150°C and uses alternating beams of aluminum and remote plasma RF nitrogen to produce an approximately 500Å thick AlN layer.

"Express Mail" mailing label number: EL721275265US

Date of Deposit: May 15, 2001

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